

inversion of covariance sub-matrices

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Hi,

I am having the following problem and was wondering whether anybody could help.

I have an $n \times p$ data matrix X containing n observations on p variables, which I use to compute the $p \times p$ covariance matrix $X'X$ and its inverse.

Now, call $D'D$ the $q \times q$ sub-matrix of $X'X$ obtained by taking q columns and q rows of $X'X$.

I need to efficiently compute the inverse of $D'D$ for all $q=1, 2, \dots, p-1$, sequentially (i.e. starting with only one variable, and adding one variable at a time).

Can this be done recursively, or efficiently using the inverse of $X'X$?

Thanks,

John

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